JUNE 2023

# PCN

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# Bitesize...

## Tick-borne encephalitis detection in England 06

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## Hullternative Pest Control services Ltd thrive in the midlands.

**Like most industries, pest control is full of companies in different sizes, from one-man bands to largest establishments. All companies have to start from somewhere and it is always great to hear when start up's grow to something much bigger. For one company in particular, they have done just that.**

Hullternative Pest Control services Ltd is a family run business which was first established in 1988, by two brothers Andrew and Peter Hull. They set up with a vision to create a pest control company that would gradually expand, building on its reputation for providing a reliable and professional service as well as excellent customer care. Once the business was set up, they introduced their brother Johnny Hull into the company as a service technician and between the three of them, they handled all aspects of the business including pest control, accounts, and administration.

Since then, the business has grown from strength to strength, and they now have a team of six staff members in the office looked after by Natalie Ford office manager and seven pest controllers on the road. Based in Birmingham, they cover a whole range of pest control and bee keeping, from the tops of Leicester down to Bristol along with contract work in parts of Wales. Having moved offices last July due to expansion, Martin Hull, service manager of Hullternative says, 'As a business we have come so far, and achieved so much! We outgrew our previous office three years ago, but only moved last July when the right premises became available.

We have found that even though the last few years have been tough for everyone due to working through the pandemic and then being hit with the energy crisis, business did shift for us, but it didn't slow down. Through 2020 to 2022, pest control in domestic areas increased to a rate that our business still bloomed, fortunately. Now we are looking ahead and managing larger contracts with the NHS, Green Power and prestigious businesses in water supply. I think every company has felt the pinch in recent times with the many cost increases but fortunately for us we have been able to manage these increases effectively. We have got a great client base that has been built up over the years due to our good working relationship, work ethic and honesty and I believe this is why we have succeeded in the way we have.'


## Bird Free : 4 Years effective

**New data indicates that Bird Free is 100% effective in dissuading feral pigeons from roosting at night for at least four years after installation. Up until now, Bird Free has stated, via HSE that the efficacy of the product lasts for 3 months, however we now have new data to prove otherwise.**

This data derives from a test that was done on a night roost sit at the Veterinary Clinic of the University of Pisa in San Piero a Grado. From day 0 (the day of installation) the number of pigeons were counted every day, up to 4 years. The figures from this shows that, after installation of Bird Free, not one single bird was observed roosting at night. Based on the reported results, HSE has now granted the efficacy of the product a minimum of 4 years. For more information, please go to Killgerm.com

## A warning has been issued for the public to remain vigilant after sightings of Asian hornets *Vespa velutina* in / around the UK.

The invasive species was first spotted this year on 5th April in a cauliflower within a weekly vegetable delivery in Northumberland, approximately 20 miles north of Newcastle upon Tyne. The NBU responded to the report and a bee inspector collected the hornet later the same day for analysis. This was a single hornet incursion.

Another sighting was on the deck of a ferry from Poole to Cherbourg taken on 10 April 2023, and again in Folkestone on 13 April, but the Asian Hornet flew off before it could be captured. Monitoring traps have been deployed in the area.

The Asian hornet, or yellow-legged hornet, is an invasive species in Britain and is a significant predator of bees. If you spot an Asian hornet, please do not disturb it or the active nest if there is one. You should report the sighting through the Asian Hornet Watch app, through an online form **https://risc.brc.ac.uk/alert.php?species=asian_hornet** or emailed to the Non-Native Species Secretariat with a photograph and location details to **alertnonnative@ceh.ac.uk.**

## Michael has joined Killgerm as a Technical Manager in March. He studied for his BSc (Hons) in Biology at the University of Salford with a focus on Parasitology, Vector Biology and Environmental Science.

**He began his journey in Pest Control working as travelling support technician across the UK gaining a wealth of valuable experience in tackling a variety of area-specific pest issues.** Following this he worked as a Specialist Infestation Technician, dealing with heavy rodent infestations in large and complex food manufacturing and distribution sites across the country. This has led him to gaining his Field Biologist qualification and working in that capacity in London and most recently in West Yorkshire. At Killgerm, Michael will be providing industry advice, delivering training courses and carrying out pest control inspections and audits.

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# Tick-borne encephalitis detection in England

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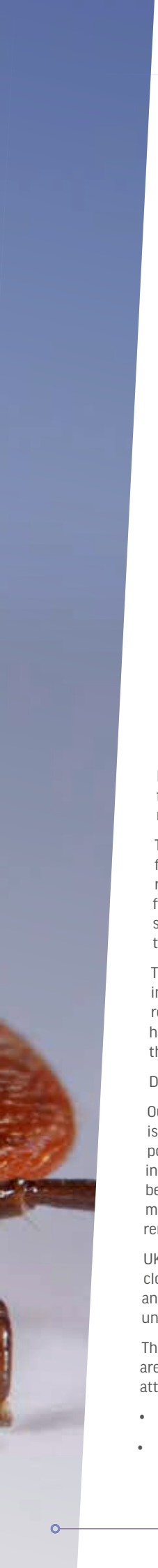


# A new risk assessment, published by a multi-agency cross-government committee, reports that tick borne encephalitis (TBEV) is now likely to be present in England.

TBEV has been detected in ticks in Hampshire/Dorset border, New Forest, North York Moors and Thetford Forest. Four cases have been acquired, two in Hampshire, one in North York Moors and one near Loch Earn (southern Highlands)

**UK Health Security Agency**

The risk assessment is based on both human cases and the detection of the virus in ticks in several areas of the country. The risk to the general public in the UK remains very low.

There have been 3 cases of probable or confirmed tick-borne encephalitis acquired in England since 2019, including one linked to the Yorkshire area in 2022. This case in 2022 is the first confirmed case in England. The virus has also been detected previously in the Hampshire and Dorset, and Norfolk and Suffolk border areas but may also be present elsewhere as the tick species that carries the virus is widespread in the UK.

The tick-borne encephalitis virus (TBEV) is a virus carried by ticks and is common in many parts of the world, including many countries in Europe. It causes a range of disease, from completely asymptomatic infection, to mild flu-like illness, to severe infection in the central nervous system such as meningitis or encephalitis. Symptoms of this are similar to other causes of meningitis, and can include a high fever with headache, neck stiffness, confusion or reduced consciousness.

Investigations into why the virus has been found in ticks more frequently in recent years are under way, but is likely due to a number of factors.

The risk to the general public in the UK remains very low from TBEV, but the UK Health Security Agency (UKHSA) has recommended changes to testing in hospitals so that any further cases can be detected promptly and will be enhancing surveillance – including asymptomatic surveillance in people in the areas where TBEV has been detected.

Ticks can carry other diseases such as Lyme disease – a bacterial infection which can be treated with antibiotics – so UKHSA is reminding the public to check themselves for ticks after they have been outdoors and remove them promptly and correctly if they are found.

Dr Meera Chand, Deputy Director at UKHSA, said:

Our surveillance suggests that tick-borne encephalitis virus is very uncommon in the UK and that the risk to the general population is very low. Ticks also carry various other infections, including Lyme disease, so take steps to reduce your chances of being bitten when outdoors in areas where ticks thrive, such as moorlands and woodlands, and remember to check for ticks and remove them promptly.

UKHSA carries out surveillance of vector-borne disease in the UK, closely monitoring sentinel animals, tick and mosquito species and their distribution, and the infections that they carry, to understand more about emerging infections in this country.

The public are reminded that they should seek GP advice if they are unwell after a tick bite, and should seek urgent medical attention if they or someone they know:

- has symptoms of meningitis:
- severe headache
- stiff neck
- pain looking at bright lights
- develops neurological symptoms:
- a fit (seizure), if not known to be epileptic
- sudden confusion or change in behaviour
- weakness or loss of movement in arms and legs
- facial dropping, change in vision or slurred speech

**Blood-feeders**

Ticks are minute arachnids that take the blood of animals and people. They are typically located in wooded areas or on moors, where they often take blood from deer.

When taking blood, they can transfer pathogenic viruses and bacteria. Lyme disease, a bacterial infection caused by *Borrelia burgdorferi*, is commonly carried. If reported early enough, it is successfully treated via antibiotics.

The chance of acquiring tick-borne encephalitis (TBE) from a tick is a lot lower.

However, the public and pest controllers should follow precautions to prevent tick bites when out in rural areas and tick hotspots. It is crucial to check yourself regularly for ticks and to take them off swiftly and safely.

**How to steer clear of ticks:**

- stay to clearly defined tracks / paths and take care not to move in contact with vegetation
- cover your skin while walking outdoors and keep trousers tucked into socks
- avoid dark clothing - wear lightly-coloured items so ticks can be seen and removed
- use insect repellents such as DEET
- Make regular checks for ticks on your body and clothes, including children and companion animals
- Note that adults are typically bitten on the legs and children on the head or neck How to remove ticks safely:
- don't delay - remove them as soon as possible
- select a pair of fine-tipped tweezers or a tick removal tool
- grasp the tick as close to the skin as possible
- pull upwards slowly and firmly, as mouthparts left in the skin can cause infection
- clean the bite area with antibacterial wash/soap and water, and monitor it for several weeks for any changes
- contact your GP promptly if you begin to feel unwell with flu-like symptoms or develop a spreading circular red rash

Ticks carrying TBE virus have been located in some areas in England. These are Hampshire, Dorset and Norfolk. On infrequent occasion, people locally may have been infected. However, no cases were confirmed until recently.

Scientists have data (European Congress of Clinical Microbiology and Infectious Diseases) that TBE cases are rising Europe with 3,800 reported in 2020.

Tick scientists theorise the route of infected ticks into the UK could be via migratory birds, with climate change on influence.

Sally Cutler, professor of medical microbiology at the University of East London, confirmed that TBE virus had been seen at low levels in ticks in the UK since 2019.

She said the virus comes in different variants, and the one being detected in the UK to date "has been one of the milder variants".

Prof Cutler added: "Vaccines are used to protect populations in highly endemic areas, but we probably are not yet in a situation whereby we need this level of protection at this time."

### Which tick species is carrying TBE virus in the UK?

*Ixodes ricinus* is the species, known as the sheep tick or castor bean tick.

### Key Features

Adult sheep ticks are grey/brown in colour, greatly changing is size depending upon whether they are fed or unfed. The male is 2.4 mm - 2.8 mm long, an unfed female is 3 - 3.6 mm long and a fully engorged female reaches 11 mm long. When fully fed the ticks have the appearance of a bean or pea and it is often difficult at this stage to see the small legs.

### Biology

The sheep tick, in contradiction to its name, feeds on a large number of hosts including humans, wild and domestic animals. After feeding the female ticks deposit their eggs (many hundreds) on the vegetation. The six-legged larva emerges from the egg and seeks a suitable host for a blood meal by climbing to the top of the vegetation and seeking a passing host. The technique of this search is similar in all the ticks involving the elaborate sensory system on the forelimbs. The larva moults to form the eight-legged nymph that then feeds from another host. Moulting to the adult then follows and the feeding takes place on a further third host. This life cycle is typical of a three-host tick - the three hosts may or may not be of different species. Each feeding stage feeds slowly and once only, taking several days or longer to engorge with blood, ie: larva 2 - 6 days, nymph 3 - 8 days and the female adult 6 - 12 days. Although the stages follow as outlined, there are often cases when the hosts are unavailable and then the great survival capabilities of the ticks are evident. Larvae are frequently capable of surviving for up to fifteen months without feeding, whereas the nymphs can survive about thirteen months and the adults almost two years. Once on the host, a tick may wander around for several hours before settling down to attach and feed.

The females, nymphs and larvae commonly parasitise medium to large sized mammals such as sheep, cattle deer and dogs. The nymphs and larvae also feed on small mammals, birds of many species and reptiles. Bats may also be affected.

### Distribution

*I. ricinus* is the most common species of tick in North West Europe. It is found in rough pasture and woodland throughout Ireland, Britain, in particular in the West Country, Scottish Highlands, Southern Uplands, Pennines, Lake District, North Yorkshire moors and parts of Wales, Western and Central Europe and European areas of the former USSR, Algeria and Morocco, eastwards to the Caspian Sea and Northern Iran.

### Significance

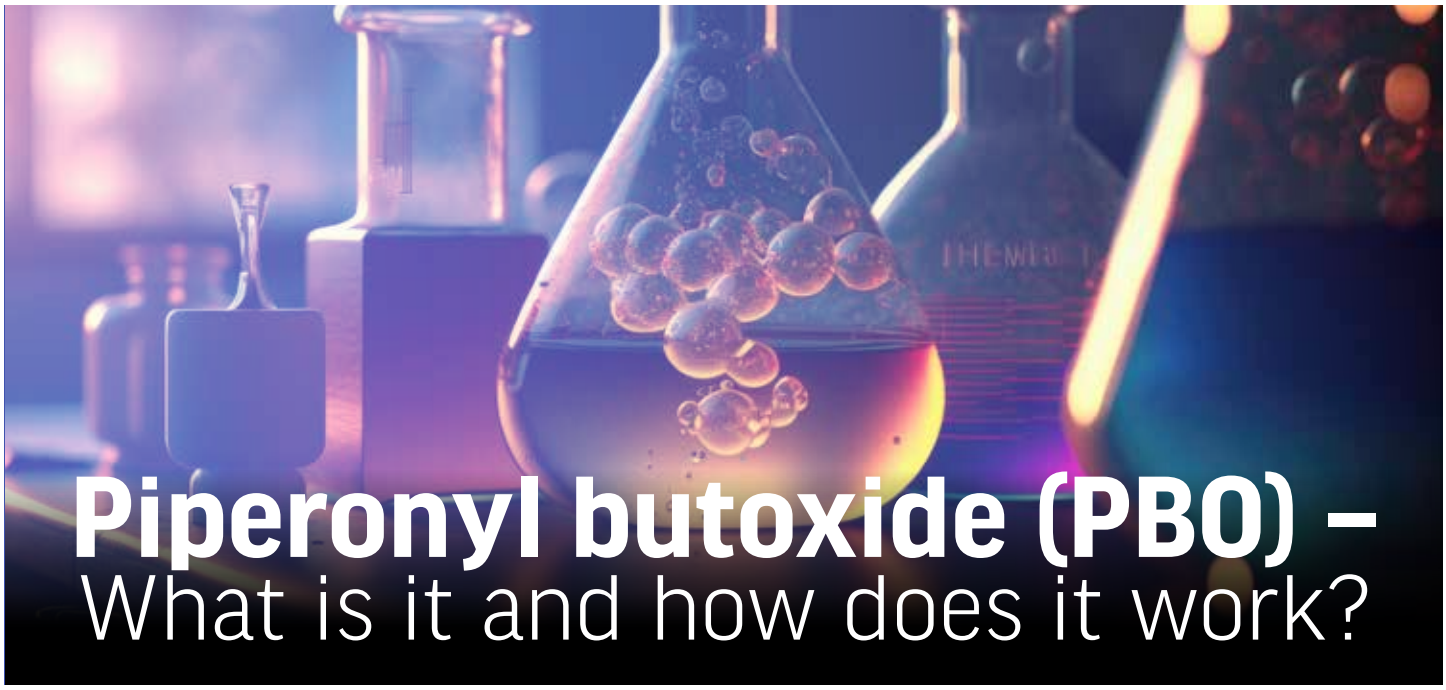
When ticks feed they have the capability of becoming embedded in the skin of the host and causing a great deal of irritation to the host. They feed over a long period and the skin around the bite can form a cup-like blemish on the skin, growing up to 15 cm in diameter over 3 - 4 days. Other symptoms such as fatigue, headache, fever and muscle pains may also occur. Although rare, tick paralysis can occasionally result from the bite of a tick. This is a paralytic reaction to the toxins introduced by the tick when feeding on the host and can occur in humans and domestic animals.

Ixodid ticks are responsible for the transmission of Lyme disease, the most serious arthropod-borne human disease of Europe and North America. This tick is the vector of the arbovirus of Louping ill (primarily of sheep and cattle but affecting humans also) in Britain and Ireland, of tick-borne encephalitis virus (TBE) in Europe and of *Borrelia burgdorferi* that causes Lyme disease. The UK strain of Lyme disease is said to be relatively weak and patients treated early with antibiotics usually recover fully. Particular risky areas for infection by *B. burgdorferi* are the New Forest parts of East Anglia and wooded areas in the Alps.

Although tick bites are common, they don't always cause problems. Lyme disease affects over 1,000 people in the UK each year.

### Control

Treatment consists of identifying the host animal and excluding it or treating it with a veterinary product.



# Piperonyl butoxide (PBO) – What is it and how does it work?

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PBO is contained within thousands of insecticide products globally so you will no doubt have seen PBO on insecticide labels. Have you ever wondered what it is and how it works? .

## It is a synergist

PBO is a synthetic synergist. In chemistry, a synergist is 'any admixture to a substance for increasing the effectiveness of one or more of its properties.'*

In the case of public health insecticides, it is usually natural pyrethrins or synthetic pyrethroids that PBO is mixed with. The effect is to boost the action of the insecticide, making it more effective.

PBO does not work on its own, it must be combined with another active. Therefore, we don't have products that are just PBO - that won't kill any insects. Its base form is a pale yellowish liquid and it is an organic compound. It is one of the most common synergists there is.

## The science behind PBO

How does PBO work? Insects can sometimes break down insecticides using enzymes within their systems (specifically in this case the cytochrome P-450 system or the mixed-function oxidase system (MFOs)). These particular enzymes work on detoxification processes as a defense system for the insect.

This can make them more resistant and more likely to break down and metabolise insecticides prior to them having time to take effect. PBO inhibits these enzymes, therefore giving the insecticide time to work more effectively.

## What about resistance?

By actively impeding the detoxification process, via enzyme suppression, the insects natural defense mechanisms against toxins have decreased effectiveness. So, when we consider the metabolic type of resistance to insecticides, PBO can effectively override the insect's weaponry against an insecticide.

## What about products without PBO?

Not all insecticide products contain PBO, and this is OK! For different uses and even down to different insecticide compounds and the type of insect, PBO is not always needed. For example, we don't tend to use a PBO and insect growth regulator (IGRs) together (without the addition of another active) - you will always see a pyrethroid or pyrethrin in the mix too. IGRs can be used on their own, as they work on a separate insect process.

## What is PBO's environmental status?

We all know that natural pyrethrins and synthetic pyrethroids are not to be released either purposefully or inadvertently into the environment due to their damaging effects, particularly in an aquatic environment. PBO performs in a similar way in an aquatic environment. PBO on its own, at lower doses, has low toxicity in mammals but the effects in a water body are similar to that of the insecticides mentioned. PBO is considered highly toxic towards aquatic invertebrates. PBO is also broken down relatively quickly by sunlight - in a matter of hours the half-life is dramatically reduced, indicating that in the outside environment it will breakdown quickly.

By following label directions and best practice for insecticide use we can maintain protection of the environment whilst still performing due diligence in Public Health pest management.

## In essence:

- PBO increases the potency of the active ingredient in the insecticide product.
- It can help to overcome metabolic resistance by inhibiting cytochrome P-450.
- PBO performs similarly in the aquatic environment as general insecticides, so follow the label.
- PBO has low toxicity to mammals and birds (humans included).
- If normal, broad - spectrum products are not working as you think they should, look for a product containing PBO

***All references can be obtained by emailing technical@pestcontrolnews.com**

# How to create a pest control business marketing plan

Creating a plan for marketing a pest control business is essential for success. This plan outlines the budget, strategy, and benchmarks of success. It is important to remember that this plan will need to be adjusted according to changing market conditions. There are six steps to forming a fundamental marketing plan for your pest control business.

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**Step One –** Decide who your ideal customer is – are you looking to specialise in commercial or domestic pest control? How far large of an area do you want to work in locally? Pest control services typically focus on local markets rather than national ones. Tailoring your pest control sales pitch to fit the customer is key to a successful campaign.

**Step Two –** Define your marketing goals based on a clear, measurable set of metrics. How many leads do you want to have in a week or month? How many of them would you like to convert into customers?

**Step Three –** Identify your main competitors and what they're doing to promote their businesses.

**Step Four –** Set up the infrastructure for tracking key metrics that will define the line between success and failure.

**Step Five –** Outline your primary marketing strategies for selling pest control. These should be specific and easily acted upon.

**Step Six –** Specify the reporting guidelines to properly monitor your campaigns.

You don't need to be an expert to create a pest control marketing plan. There are many examples of marketing plan templates online to help you. Marketing Strategies for Pest Control Businesses

Posting a pest control advert is not enough to win new business. You need clear strategies for meeting the needs of your customers, whether they are residential or commercial pest control customers. Without that, you have no chance of successfully selling pest control services. Here are some of the best pest control marketing ideas you can start implementing within your business right now.

### Monitor Your Local Search Presence

Google AdWords and Analytics are beneficial resources to figure out your performance in the search engine rankings for your desired keywords. With Google controlling 92% of the global search engine market, it's essential to rank highly on Google to be successful. To improve your online presence, you need to focus on the appropriate keywords, meet customer demand, and climb in the rankings.

### Paid Online Advertising

Popular social networking sites such as Facebook, Instagram, and Twitter have shifted to a paid advertising model for businesses. Although organic exposure is still feasible, it is only a small percentage of what it used to be in the past. Allocate resources to paid digital marketing placements. Although it may require some effort to master, social media advertisements yield some of the highest returns compared to other advertising methods.

### Optimize Your Website for SEO

Have you enhanced your website for Google to explore? If that sounds like gibberish to you, you're not the only one. Nonetheless, it's an essential marketing technique and one worth pursuing. Basic SEO blunders can impede the amount of visitors to your site and stop you from reaching the top of Google's search rankings. If you're not on the first page, you might as well not be there at all, since 90% of individuals never go beyond the first page. SEO enhancement can be intricate, so don't hesitate to enlist a specialist to examine your website and make some slight adjustments and modifications.

### Find Your Local Audience Through Facebook Groups

Establish yourself as a reliable presence in your local area. Aim to get to the point where anyone who has a pest issue knows to go to you.

Connect with people in the neighbourhood through social media. Most areas have groups specifically for those who reside there. Utilize this resource, but don't just spam them with ads. Interact with the people, respond to their queries and build relationships with them to create a sense of trust.

### Sponsor Local Businesses

Look for the chance to sponsor a local sports or charity event and get your name out there.

### How to Help Your Pest Control Business Stand Out from the Competition

The demand for pest control services has increased significantly, which is a positive development. However, it also means that you need to come up with innovative ways to differentiate yourself from the competition. Although it's a profitable business, you need to work hard to secure a share of the market. Here are some effective pest control marketing tips to help you stand out from the crowd:

- Create a website that is tailored to converting visitors into customers. There are many free templates available that can serve as a starting point. However, a professionally designed website that caters to your target audience is irreplaceable.
- Emphasize the benefits of your services rather than the features. Focus on why customers should choose you to handle their pest control needs.
- Establish your value proposition from the outset. You should be able to articulate why you are the best choice for pest control over other companies.
- Invest in your SEO (Search Engine Optimization). Most online traffic comes from Google searches. Optimize your technical SEO and offer valuable content to achieve top rankings.
- Diversify your content. To reach as many people as possible, mix up your content with infographics, blogs, and video content.
- Network in person and get involved in community events. Attend local events, distribute business cards, and be an active member of your community.
- To stand out from the competition, you need to choose a different path. Instead of producing the same old blogs and social media posts, identify the flaws in your biggest competitors' pest control sales techniques. By outperforming them, you can dominate your local market.

### Create an Email List for Customer Retention

Develop a mailing list and invite your current customers to join. Continue to engage with your customer base to strengthen relationships and show appreciation for their patronage. Send out exclusive, useful information periodically to keep your clients connected and loyal.

### Solicit Online Reviews

Many companies struggle to get the positive reviews they need to thrive in the online marketplace. Most customers will read reviews before deciding to buy, and a few negative ones can be damaging to a business. To garner more reviews, businesses should offer incentives like discounts to those who write them.

# Pesticide Usage in Scotland: Rodenticides on Grassland & Fodder Farms 2021

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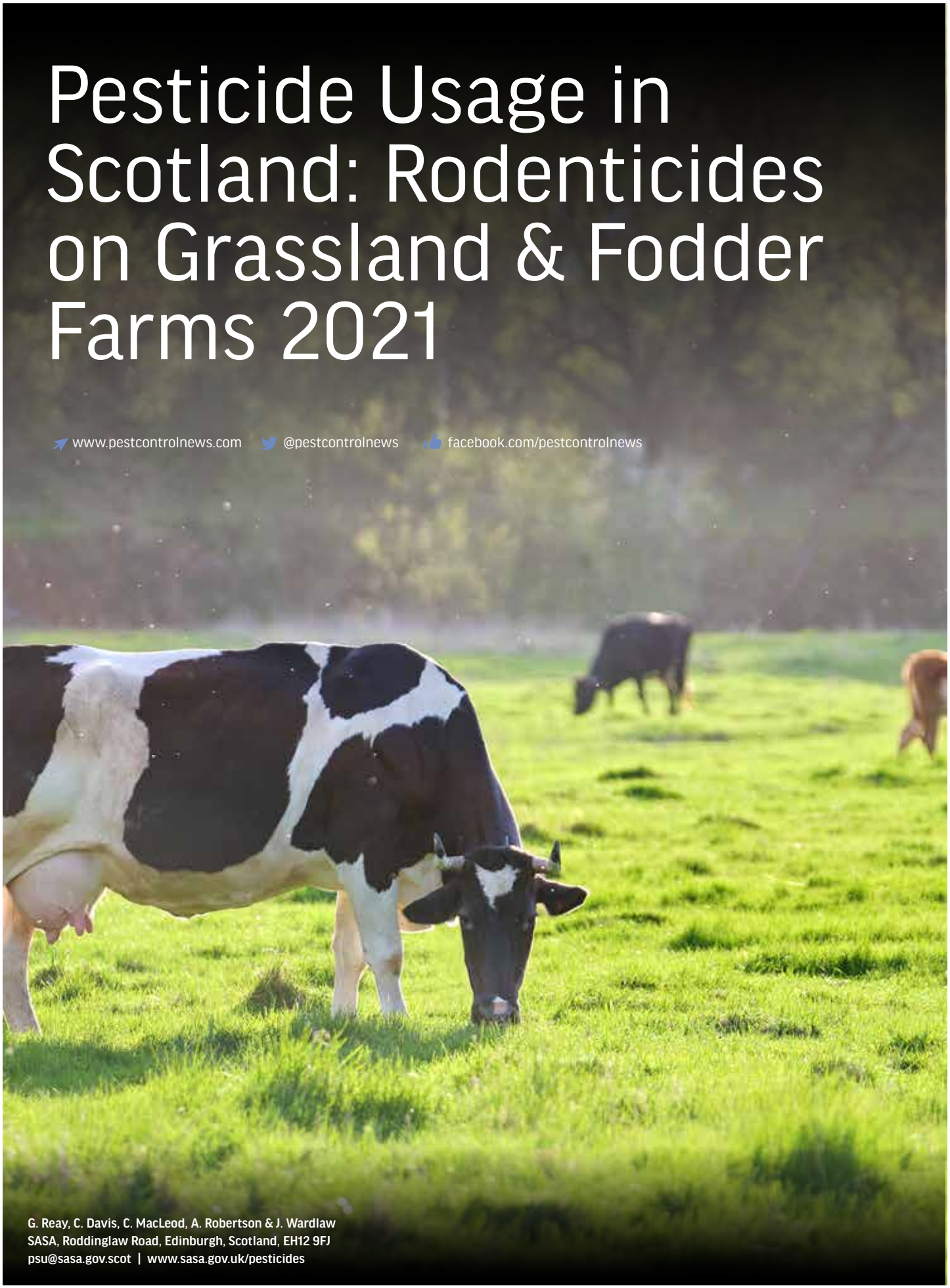

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2021

A survey of rodenticide use on grassland and fodder farms, in Scotland, has been published by the Scottish government. While the data relates to Scotland only, the results are of interest to all users of professional use rodenticides in the whole of the UK – there is likely to be 'read-across' and similar patterns observed so we can all learn.The full report is available online

https://www.gov.scot/publications/pesticide-usage-scotland-rodenticides-grassland-fodderfarms-2021/ and summary extracts follow below..

### Introduction

Scottish Government (SG) conducts periodic post-approval surveillance of use in arable, grass and fodder and local authority sectors. This monitoring is conducted by the Pesticide Survey Unit at SASA, a division of the Scottish Government's Agriculture and Rural Economy Directorate. As part of this programme, a survey of rodenticide use on farms growing grassland and fodder crops was carried out in 2021. This is the 7th survey in this series.

### Key findings

This report presents the results of a survey of rodenticide use on Scottish farms growing grass and fodder crops in 2021. Information was collected from 601 holdings, which collectively grew three per cent of the 2021 fodder and grass crop area. Data from this sample were used to estimate total Scottish rodenticide use in this crop sector.

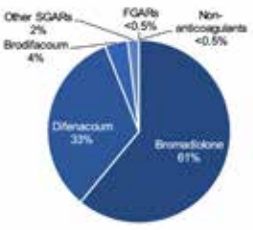
### How many farms were using rodenticides and who applied them?

It was estimated that rodenticides were used on 27 per cent of all grass and fodder farms in 2021, significantly fewer than in 2017 (35 per cent) and 2013 (43 per cent). Farmers conducted the baiting on 56 per cent of holdings using rodenticides and applied 58 per cent of rodenticides by weight, with the remainder being applied by pest control professionals (PCPs).

### How much rodenticide was used on farms and which active ingredients were used?

In 2021, an estimated 85 tonnes of rodenticide products were used on grassland and fodder farms. This is a decrease of 34 per cent since 2017 and 61 per cent lower than in 2013. The products used contained ca. six kg of rodenticide active substance. As in previous surveys, almost all products used (>99 per cent) were second generation anticoagulant rodenticides, primarily bromadiolone and difenacoum (94 per cent by weight).

**Figure 5 Percentage weight of rodenticide product used on grassland and fodder farms – 2021**

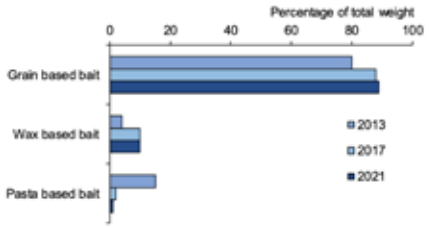



Note: Other SGARs are bromadiolone/difenacoum, difethialone and flocoumafen. FGARs are coumatetralyl and warfarin. Non-anticoagulants are alphachloralose and cholecalciferol

### What time of year were baits applied and which formulations were used?

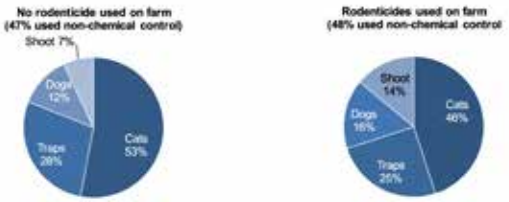
Sixty nine per cent of rodenticides were applied throughout the year, either used permanently or in multiple individual baiting operations. This is an increase in year-round use from 2017 (54 per cent) but lower than 2013 (75 per cent). Most rodenticides were used in Autumn and Winter (61 per cent). Grain baits were the most common product type (89 per cent) and the main targets were a combination of rats and mice (69 per cent).

**Figure 8 Type of rodenticide bait used on grassland and farms (percentage of total weight) -**




Forty seven per cent of farms that did not use rodenticides and 48 per cent of those that did, employed non-chemical rodent control; most commonly cats and traps.

**Figure 10 Non-chemical control on grassland and fodder farms (percentage of total methods used) – 2021**




### What level of training, best practice and stewardship were users following?

Data were collected about training, compliance with best practice and aspects of farm operation. Fifty four per cent of farmers were aware of rodenticide stewardship. Overall, 17 per cent of farmers had completed stewardship compliant training and 21 per cent planned to in the future. As in previous surveys, significantly more PCPs had completed training than farmers. In relation to best practice, the majority of farmers and PCPs stated they complied with all elements and responses were similar to those in 2017. Whilst a higher proportion of PCPs reported compliance, the only difference was, there was some evidence that farmers were less likely to search for and remove rodent carcasses. In addition, PCPs were significantly more likely to use non-toxic indicator baits to monitor rodent activity than farmers. In relation to farm operation, farmers that practised rodenticide baiting were significantly more likely to be members of a quality assurance scheme and to have livestock and a grain store than farmers that did not use rodenticides.

### What did users know about resistance?

Twenty per cent of the responding PCPs stated they had encountered or suspected resistance to rodenticides on farm. Sixty seven per cent of these PCPs stated they changed bait formulation due to this suspected resistance, 17 per cent switched to using traps and 17 per cent stated they suspected it was behavioural resistance only. Farmers were not asked about suspected resistance during this survey, but this data will be collected in future surveys.

### Has the CRRU stewardship regime made an impact?

This dataset is the second in this series to be conducted since the industry led stewardship scheme was introduced in 2015. This survey, and the previous survey in 2017, display a trend of decreased rodenticide usage, increased baiting by PCPs rather than farmers, and increased uptake of best practice which is likely to have been influenced by the introduction of stewardship and concurrent regulatory changes.

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The **only** professional product approved for use on field mice


Find out more:

## Core benefits

- **Rodents stop-feeding 24 hours after eating a lethal dose. Control is possible within as few as 7 days**
- **Balancing performance and environmental impact**
- **Stops the waste of resources**
- **Breaks the cycle of resistance**

Selontra® contains Cholecalciferol. Selontra® is a registered trademark of BASF. Use biocides safely. Always read the label and product information before use.
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# BASF's Selontra® becomes the only professional rodenticide suitable for targeting field mice, *Apodemus sylvaticus*

## The award-winning cholecalciferol rodenticide, Selontra®, is now approved for usage on field mice (also known as wood mice), BASF has announced.

**This exciting label re-launch means that the popular product from the leading pest control solutions manufacturer is the only professional rodenticide on the market suitable for targeting these wood or field mice, also known as *Apodemus sylvaticus*.**

"Working with our Selontra® distribution partner in Killgerm®, we listened to the market and worked on providing a much-needed solution to solve our customers' problems," said Laurence Barnard, Country Business Manager for Professional & Specialty Solutions at BASF.

"Pest controllers have been calling out for a suitable product to control these field mice for many years now, and we're delighted to share the news that Selontra® is now approved for use against this species when needed."

Suitable for usage in and around buildings, field mice have been added to Selontra®'s approved list of target species thanks to the proven efficacy against the pests and high palatability of the product.

Until packaging with new labels enter circulation, BASF and Killgerm® will provide users with a copy of the new label (also available to download from www.pestcontrol.basf.co.uk or www.killgerm.com), meaning pest controllers can begin using the rodenticide to control these field mice immediately, in and around buildings, as long as they have a copy of the new label.


**A note from PCN Technical Editor...**

**The Selontra label has been re-formatted since first released with *Apodemus sylvaticus* on the label. Please download the very latest version, from the above websites, to replace previous labels.**


The shelf life of the popular product has also been extended from three years to five years, providing retailers and pest controllers with an even longer opportunity to safely and effectively use the rodenticide.

This non-anticoagulant bait, which launched in 2020 after ten years of development, offers pest control professionals fast, effective results thanks to its unique formulation.

Featuring the active cholecalciferol, the soft block bait offers a stop-feed effect, on both the bait and any available food on the site, 24 hours after consuming a lethal dose, making complete control possible in as few as seven days.

As well as offering a different mode of action, Selontra® also balances performance and environmental impact, is neither persistent in the environment nor bio-accumulative, and can withstand extreme climates.

BASF offers a Selontra® training programme, which allows pest controllers to become a certified user, and refresh their knowledge on baiting strategies and best practice, as well obtain all-important CPD points.

To find out more and become a certified Selontra® user at https://www.training.selontra.com/

Find out more about Selontra® at https://www.pestcontrol.basf.co.uk/en/Products/Overview/Rodenticides/Selontra.html

# Arctech Innovation

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## How we're harnessing insect intelligence to predict and prevent the spread of pests and the diseases they carry

*"This is a bug's world. For every single one of us, there's around 500 million of them. It's highly likely the next pandemic will be an insect-borne disease, and we need better solutions now if we're to be prepared for that."*

These are the words of Professor James Logan, our co-founder and CEO of Arctech Innovation. We are a for-profit and for-purpose enterprise harnessing insect intelligence to develop sensor enabled pest control and health monitoring devices for predicting and preventing the spread of pests and disease, globally.

James' journey began at the London School of Hygiene & Tropical Medicine (LSHTM), where Arctech Innovation was formed, alongside co-founder Professor Mary Cameron, out of their desire to bridge the gap between academic research and industry needs, with a focus on commercialising novel intellectual property and ground-breaking discoveries coming out of the university.

*"Our new method of targeting bed bugs had real potential, but, as is often the case, it was unlikely to be exploited by the university. We knew there was a promising product there, and we didn't want to miss the opportunity to bring it to market,"* says James.

James' entrepreneurial instincts came to fruition, first with a successful and ongoing contract research business, followed by the launch of the BugScents® bed bug lure, which is distributed by Killgerm in the UK and Europe.

Whilst the pioneering research for BugScents® may have started in a university lab, we have taken a commercially-driven approach to bringing our IP to market, by working with global go-to-market industry partners to accelerate scale-up and deployment of our products.

Our current product pipeline at Arctech Innovation focusses on two categories: pest control and disease detection. The proprietary discovery platform that sits at the core of our innovation, Semeion iQ™, exploits the incredible odour sensing capabilities of insects to identify biomarkers of disease and the presence of pests.

*"We use an insect as a biosensor to decode an odour signature. If we use malaria as an example, we know mosquitoes are more attracted to infected people because of changes in their odour caused by the infection. Our Semeion iQ™ process means we can see what a mosquito is smelling and therefore we can isolate the odour signature of a disease such as malaria. We can also apply this same process to decode the odour signals and natural pheromones which influence arthropod behaviour,"* explains James.

Once the target biomarker fingerprint has been decoded and identified, we use scalable digital sensors and AI-powered algorithms to translate this discovery into our platform technology to develop products that detect pests and human infections.

This innovative process of exploiting insect intelligence and odour signals has formed the foundation of our BugScents® bed bug lure, and now we're working towards an Internet of Things (IoT) approach to automated pest detection.

We are also developing other novel pest control products at Arctech Innovation, including a non-$CO_2$ mosquito lure, a patented blend of chemicals that naturally attracts mosquitoes.

In disease detection, we have developed a handheld, non-invasive prototype device for rapidly detecting malaria infection in humans.

We see huge opportunities for the development of this scalable platform technology, adapting it for use across multiple sectors, from human to animal health, agriculture to biosecurity, targeting different pests and diseases.

*"Insects and diseases are adapting to existing approaches like insecticides and drugs. Progress has stalled on malaria, and disease-carrying mosquitoes are becoming more widespread, driven by climate change. With rapid, real-time detection of pests and disease, we could respond to outbreaks much quicker than we can now, and by harnessing and interrogating the data, we can even predict future outbreaks,"* says James.

Article written by Arctech Innovation Limited. For enquiries, please contact james.logan@arctechinnovation.com

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# Rodent monitoring baits – what's new?

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Non-toxic monitoring has carved its own niche in our industry and the latest new product pairs with Selontra. Selontra monitoring paste is the perfect partner to Selontra for an integrated pest management approach. Using the same bait base, (similarly to the other comparable partners from the different manufacturers,(see the example table below).

Each now has its non-toxic counterpart. Non-tox monitoring now fulfils a commonplace and mainstay part of rodent management.Non-tox monitoring also helps us adhere to the CRRU guidelines, codes of practice and the seven-point CRRU code. External use helps species identification, enabling an informed, conscious, and professionally guided choice towards treatment. Non-toxic monitoring can be used for pre-treatment applications to encourage rodents into bait stations and for monitoring. This allows for great continuity when transitioning from a monitoring to a controlling stage. It makes sense to use a monitoring bait that is complementary to the rodenticide that might be used for control purposes – otherwise known as pre-baiting.

### Permanent Monitoring

Rodent monitoring is a key component of integrated pest management, but permanent use of rodenticide externally should no longer be routine and is no longer permitted by rodenticide product labels. Special circumstances and only authorised products can be used but under certain circumstances. For the permanent use of rodenticide externally, such as 'high potential for reinvasion where other methods have proved insufficient' and must be documented for traceability and justification. As much tougher rules apply for permanent use of rodenticides, non-toxic monitoring will be much more important as a rodent management tool. 'Dr Buckle adds, "In all situations, permanent baiting must never be a routine practice. But as a monitoring device, non-toxic placebo baits should be used more often.'*.

- Monitor safely as a 'pre-treatment', without the risks carried by rodenticide
- Detect early
- Aid identification of species before applying rodenticide
- Protect non-target species
- Encourage rodents to enter bait stations
- Help determine the size and scale of initial rodent activity prior to applying rodenticide
- Undertake post-treatment and continual monitoring in sensitive environments such as in the food industry

Use of a monitoring product, which has a rodenticide counterpart, can lessen treatment time by helping to overcome a neophobic response in rats more quickly. The use of a non-toxic monitoring bait, either at first or for continual monitoring, can decrease neophobic behaviour in rats by providing them with a food very similar to the rodenticide which may be subsequently applied. The neophobic response of rats is less pronounced towards food compared to when encountering a bait station for the first time. The simple swap can then be made to the rodenticide counterpart, as the bait base will smell and taste very similar, therefore contributing to faster and more likely consumption of rodenticide. Similarly, with mice, they will quickly learn that the non-toxic monitor is a safe food and could be more likely to continue to feed on the rodenticide preparation once detected. Rodents have very limited colour vision so would not likely detect a difference in the colour of the preparation (a benefit for humans as we can clearly see the bright colours!). The choice of non-toxic preparations really does cover all bases now, with plenty of options. *For further information, references details please contact techical@pestcontrolnews.com

| NON-TOXIC | RODENTICIDE |
|---|---|
|  |  |
| Selontra Monitoring paste | Selontra 0.075% cholecalcifarol |
|  |  |
| Sakarat monitoring paste | Sakarat D wax 0.005% Difenacoum |
|  |  |
| Detex with Biomarker Blox | Contrac All-weather Blox 0.005% Bromadiolone, Solo Blox 0.05% Brodifacoum |
|  |  |
| Ratimor Monitoring fresh bait | Ratimor difenacoum fresh bait 0.005%, Bromadiolone fresh bait 0.005%, Brodifacoum fresh bait 0.0029% |
|  |  |
| Harmonix monitoing paste | Harmonix rodent paste 0.075% cholecalciferol |
|  |  |
| Talon track | Talon soft 0.005% brodifacoum |

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# ‘Caught in a trap’ – experiences of trapping pest rodents

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## In an interview with Stuart Blair of Graham Pest Control, Pest Control News learns about his experiences with a range of traps for the control of moles and Norway rats.

Stuart, let’s start by you telling us a bit about yourself. What’s your background in pest control?

Well, I’ve been in the pest control industry for over 14 years now and it’s something I really enjoy. I remember gaining my RSPH Level 2 Certificate in Pest Control back in 2008 and being delighted with my achievement. I began by covering a variety of sites in my work, from industrial premises to whiskey distilleries to government run farms, where I controlled rabbits and moles in the main. At the beginning I wasn’t doing a lot of work on agricultural land and this was something I wanted to pursue in time. I was initially a draughtsman for around 7 years and pest control was a hobby, particularly enjoying the use of air rifles. I became self-taught regarding mole trapping, mainly through my own experiences.

Then things transitioned from a hobby to a job. From 2008, with my pest control qualification under my belt, I took the plunge. I applied for a pest control position at a national company and worked there for six and a half years. From there I moved to another national company and stayed for 6 years. I’d always wanted to take on more agricultural pest control work though and this led to me taking a role with Graham Pest Control, where I can satisfy my preference for agricultural pest control as a speciality.I enjoy focussing on eradication of high-level activity pest infestations such as Norway rat issues. This is where my enjoyment of problem solving comes in and trapping is a big part of this. I employ trapping techniques where I can, to minimise rodenticide use, in accordance with CRRU. Over the years I have learned to appreciate the intelligence of vertebrate pests and factor that into my control efforts. Trying to persuade / coax an animal, via its own instinct, to be trapped as a form of humane despatch holds true to rats, mice, moles and rabbits.

I’ve been lucky enough to get my hands on a variety of different traps and I share my thoughts on them below.

### Trapline Mole Trap

**What sites have you trialled this on?**

I’ve used these successfully on golf courses, lawns of estates, entrances to stately homes, gardens, reservoirs, domestic gardens, hotel grounds and farmland. Anywhere where the moles are basically!

**How easy was it to set?**

I found it easy to set by simple rotation. You can also follow tutorial videos if you struggle. This is a nice and simple trap based on larger gopher traps in America. I really like it for the shallower mole runs. Set and positioned correctly, I found highly unlikely to get a foul catch. Moles are caught by the upper chest / neck area for quick and humane kill provided by a ‘clean’ catch. Some mole traps can catch at the waist and below depending on trigger loop arrangement, so beware of this.

**Why did you decide to trial it?**

I’d heard about this from my product supplier and also saw similar being used in America.

**How many visits did it take to get results and how often were you checking the traps?**
This depended on the various jobs that I was undertaking – quite specific and on a job-by-job basis. Jobs did vary from a catching just couple of moles to up to 30 or 40. I check mole traps at least every 2 days as frequent checking is very important for both animal welfare and efficacy.

**Were you using just one or positioning them 'back-to-back'?**
Good point, I have used traps back-to-back before, in a mole tunnel / run, and this works well as moles can approach from either direction and still be caught.

**Are there any pitfalls with this trap?**
Not really, as you tend to work out the pros and cons of different traps for relevant situations. This worked especially well for narrow / shallow runs.

**Are there any improvements you'd suggest – would you recommend it to other pest controllers?**
I'm happy with it and yes, based on my experience, I would definitely recommend this to others.

**DOC 150**
**Which pest species were you targeting?**
I've used this extensively for rat control – Norway rats Rattus norvegicus to be precise. An absolutely fantastic and successful rat trap in my opinion. It's all about how the rat interacts with it. It's not feeding off it like it would be doing with baits. You're coaxing the animal over the treadle plate within the enclosed box. The rat is going in, past the buffers and once it has zig-zagged through, it has committed itself to the trap. By this I mean it is putting its body weight on the treadle rather than reaching over to lightly feed on an attractant within. In my use, I have therefore observed no foul catches at all – the rat can only go over one way. For this reason, I feel it is extremely humane. It is a very powerful trap with a good history of trapping programmes in New Zealand. It takes no prisoners let's put it that way!

Just trapping in general is a great method as the pest carcass is retained. This stops potential for secondary poisoning, takes the rat away as a source of odour and we don't get the usual problems with bluebottle flies. The reassurance and perception are also there with certain customers - when rats are visibly caught you know for sure you've got it!

**What sites have you trialled this on?**
A good range, such as farms and waste recycling centres with rat problems. I've put the DOC 150 in areas where the rats were coming from. By doing this, it means the rats are interacting with the trap when moving from one place to another while foraging. I've had success catching rats on their foraging routes by interception.

**How easy was it to set?**
Once you've done it a couple of times it does come easily. You do need to be careful though as it is powerful. It does take a certain amount of strength to do it. Just practice setting it a few times before using it in the field is my advice.

**Why did you decide to trial it?**
Had seen it online being used in New Zealand and then saw it had become available in the UK. I was attracted initially by the humaneness and effectiveness, hence trialling it.

**How many visits did it take to get results and how often were you checking the traps?**
This was checked at least once within 24 hours of setting, as per the spring trap approval order. The number of visits varied, as you'd expect, depending on level of rat activity. I preferred to use the DOC 150 on sites with long-standing activity or constant re-invasion.

**Did you use a lure?**
Yes, I fashioned a variety of my own lures to match the alternative food sources on sites, so bear that in mind as a tip.

**Did you use it in the 'box' / tunnel?**
Yes, did use it in the box to help guide to rats through and limit entry by non-target species. It's the funnelling of the target species that really makes this trap efficient.

**Are there any pitfalls with this trap?**
It is a very effective trap. My only concern is that I wouldn't want users or purchasers to be put off by the price as it is worth it. Those who might be purchasing traps on behalf of pest controllers may pick cheaper options as a desktop exercise and that's not always the way to go! Buy quality is my advice.

**Are there any improvements you'd recommend and would you recommend it to other pest controllers?**
It's a no-brainer – absolutely, yes, in terms of recommending this trap.

**Goodnature A24**
**Which pest species were you targeting?**
Norway rats and house mice are my target species when using the Goodnature A24. Some people I know have written off the Goodnature, by way of misunderstanding, as they expect it to be a 'magic wand'. This is not the case for any traps – they are part of a suite of control measures and there is no 'magic wand' for pest control. I've used it successfully in the AF Multis and also on wooden homemade props i.e. a box with restrictors to mimic the ramp system. This was my effort to make a more natural environment for the rodents. Of course, this matched up to the requirements of the Spring Trap Approval Order 'The trap must be so placed that it can only be entered by way of an artificial tunnel which is suitable for the purpose.'

**What sites have you trialled this on?**
Mainly farms and general agriculture. Results in agricultural settings seem to be a bit better than urban environments, which is worth bearing in mind.

**How easy was it to set?**
No problems here!

**Why did you decide to trial it?**
I'd seen reports of its success in other countries which really stoked my interest.

**How many visits did it take to get results and how often were you checking the traps?**
As you'd expect, the number of visits varies greatly. However, you must always check at least once within 24 hours of setting this trap.

**Did you use a lure?**
I found you need to match the lure to the target species and what it is feeding on in the current environment. One example was when I used cooking fat – matching to the food sources on site.

**Did you use it in the stand?**
Yes I've done this and it's good to have access to a ready-made option.

**Did you use the mesh tunnel?**
I did use my own boxes / barriers / mesh to further limit access for non-targets, as well as the AF Multis.

**Did it appear to catch humanely / cleanly?**
Yes, no issues at all from my experience.

**Were you coming across bodies?**
Bodies were taken away by natural scavengers for sure. I found the occasional rat body, probably before scavengers had chance to retrieve it, due to my frequent inspections.

**Would you recommend it to other pest controllers?**
Another one to recommend – like anything it's all about using it correctly, legally, following manufacturer instructions, understanding the biology of the pest species and using your own experience to best effect.

**Happy trapping!**

# Asian tiger mosquito

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## *Aedes albopictus*

## Family: Culicidae

**It is included in a list of animals classed as the most harmful invasive species in the world.** It was first detected in the south of England in 2016 but only as eggs. Since then, only eggs and some larvae have been detected and subsequently eradicated. It is spreading across Europe.

**A very characteristic mosquito due to its black coloration and white stripes throughout the body, with a central longitudinal white line down the thorax and head.** Length is less than 10mm.

**A vector in transmission of diseases like dengue, yellow fever, West Nile virus,**

**Their larvae develop in small accumulations of standing water, which makes it difficult to locate and treat.** The mosquito adapts well to urban environments.

**Under optimal conditions the life cycle is completed in about 12 days.** Winter passes usually at the egg stage. Eggs can withstand long periods of dryness.

**Only the females take a blood meal, to provide nutrients to the developing eggs.** They have a preference for mammals, including people. Unlike some other mosquitoes, they are voracious day-biters.

# UKHSA *Aedes Albopictus* Surveillance in the UK

Vector-borne diseases are responsible for more than 17% of all infectious diseases worldwide, causing more than 700,000 deaths annually. .

While these diseases are often associated with tropical regions, there is an increasing risk posed by mosquitoes, both indigenous and invasive, to the UK. The Medical Entomology and Zoonoses (MEZE) team at the UK Health Security Agency (UKHSA) is working to monitor the distribution and prevalence of these insects.

At UKHSA, the team works closely with local authorities, other government agencies and research institutions to coordinate national vector surveillance programs and conduct field-based research on the distribution and seasonality of vectors and their pathogens. The aim is to identify and monitor the spread of vectors in the UK and assess the risk of vector-borne diseases.

One of the most concerning vectors of disease is the *Aedes albopictus*, commonly known as the Asian tiger mosquito. This invasive mosquito species has been of increasing concern to public health officials across Europe and is listed as one of the top 100 invasive species in the world. Native to Southeast Asia, it has rapidly spread to many parts of the world, including most of mainland European countries.

The *Ae. albopictus* mosquito has distinctive black and white striped legs and a stripe along the top of its back, making it easily identifiable. It is a particularly biting nuisance in many countries including Italy, parts of southern France, Spain, and Croatia. This species can transmit several viral diseases to humans, including dengue, chikungunya, and Zika virus and it was responsible for an outbreak of over 60 cases of dengue in the South of France in 2022.

One of the reasons that *Ae. albopictus* is such a concern is its ability to colonise urban environments and unlike many mosquitoes it will bite in the daytime and is frost tolerant, therefore could survive winters in Northern Europe. It can breed in natural and artificial habitats including tyres, barrels, rainwater guttering, bird baths, discarded drinks cans, and has a marked preference for urban and suburban habitats.

The spread of *Ae. albopictus* is influenced by factors such as climate change and global trade. Changes in temperature and precipitation patterns can alter the distribution and abundance of mosquitoes, while increased international travel and trade can facilitate the movement of the species to new locations. This has contributed to the spread of vector-borne diseases to areas where they were previously not present, including the UK.

In addition to its role as a disease vector, *Ae. albopictus* can also have economic impacts. In areas where the mosquito is particularly abundant, tourism and outdoor activities may be affected due to the nuisance biting and potential risk of disease transmission. Established populations can be difficult and costly to control, and so the aim in the UK is to prevent establishment through targeted surveillance, and straightforward and cost-effective control strategies.

Efforts to control the spread of *Ae. albopictus* involve both surveillance and prevention strategies. Surveillance activities involve monitoring the distribution and abundance of the mosquito population, as well as testing for the presence of disease-causing pathogens. Prevention strategies include reducing breeding sites, such as removal of litter and other rain filled containers, and removal of standing water and using larvicides.

The Medical Entomology and Zoonoses team at UKHSA have established a surveillance program to detect any incursions of *Aedes albopictus*, in the UK. The program is a collaboration between various organisations, including local authorities, and other government organisations.

The surveillance program focuses on areas with high levels of international travel, such as seaports, distribution centres, and truck stops, where *Ae. albopictus* is likely to enter the country. Local authority Environmental Health Officers (EHOs) use small mosquito traps to passively attract egg-laying female mosquitoes by providing water and a small polystyrene block for them to lay their eggs on. The entomologists at UKHSA then examine the blocks for the minuscule black rice-shaped eggs.

Using this method, *Ae. albopictus* has been detected in four locations in southeast England over the last six years. The first detection was reported in September 2016 from a single trap containing eggs in southern England, and subsequently, in 2017 and 2018 from different sites in southern England. Three incursions were detected in 2019. However, there is currently no evidence that it has become established in the UK.

When *Ae. albopictus* eggs are found on the blocks, the MEZE team sets up enhanced surveillance around the area of detection to understand more about the finding and look for other life stages of the species and provide advice to the local authority. Local authority EHOs work with landowners and businesses within a 300-metre radius of the positive trap, to remove potential habitat in the area, or apply mosquito larvae control products where necessary.

The surveillance program is vital in preventing the establishment of *Ae. albopictus* in the UK, as this invasive species is a significant biting nuisance and is responsible for the transmission of several diseases, including dengue fever, Zika virus, and chikungunya. By monitoring and controlling the spread of this vector, essential steps are made to protect public health in the UK.

One of the most pressing issues facing the MEZE team and their partners is the threat posed by climate change. As temperatures rise, mosquitoes and other vectors can survive in areas they were previously unable to, increasing the risk of disease transmission. To combat this threat, the MEZE team is working to better understand the impact of climate change on vector-borne diseases. They are conducting research into the factors that influence the distribution of mosquitoes and developing models to predict how their ranges will shift in response to changing environmental conditions. The work of the MEZE team is crucial in protecting public health in the UK. Vector-borne diseases are a growing threat, and the team's surveillance and research efforts are vital for identifying and controlling outbreaks before they become widespread. As climate change continues to affect the distribution and abundance of vectors, it will be essential for the team to continue their work and expand their efforts to cover more areas of the country.

If you would like advice and support with identification and control of mosquitoes or would like to be involved with mosquito surveillance, the MEZE team can be contacted at mosquito@ukhsa.gov.uk.

For further information, UKHSA had published a document that details the actions that should be taken in the event of a non-native invasive mosquito species of public health importance being detected in England:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/887925/National_contingency_plan_for_invasive_mosquitoes.pdf

The Chartered Institute of Environmental Health (CIEH) has created a booklet on the management of invasive species of mosquitoes in the UK, which can be found here: https://www.urbanpestsbook.com/download/management-invasive-species-mosquitoes/?id=1629302934777&filename=2021_NPAP_029_NPAP+Invasive+Mosquito+Management+WEB.

Learn how to get involved with tiger mosquito citizen science: www.mosquitoalert.com/en Photo Credit: UKHSA

# Kit maintenance: Ik1.5 1 LITRE SPRAYER

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This new 1 litre sprayer has some really good features for a small sprayer. The small size makes it easy to carry and transport and the fact it come with two nozzles adds to its versatility. The fan nozzle for perimeter and blanket treatments and the adjustable nozzle for cracks and crevices. The translucent tank makes it visible at all times where your product level is.

**Practical and maintenance points:**
Remember that although the tank may have capacity for more than 1 litre, we do not recommend that you overfill the chamber, its designed for 1 litre and therefore the extra space is for air pressurisation.

The sprayer has a safety valve, acting a clever failsafe therefore the sprayer cannot go over 2.5bar. Priming with 15 pumps will bring the sprayer up to pressure.

The design negates the need for any tools, being fully assembled/disassembled easily.

Once you are finished using the sprayer, remember to de-pressurise using the nifty pull-out valve releasing any remaining air before emptying, cleaning, and storing. The manufacturers advice is to clean the sprayer after each use.

Maintenance wise, the sprayer is simple. Ensure the moving parts of the sprayer are greased. The sprayer is designed to be chemical resistant, perfect for pest applications. The nozzles should also be cleaned after use.

Don't leave any product in the sprayer when you are not using it.

- Safety valve with depressurisation option
- Protective sleeve for valve chamber
- Large opening for easy filling
- Translucent tank with level indicator

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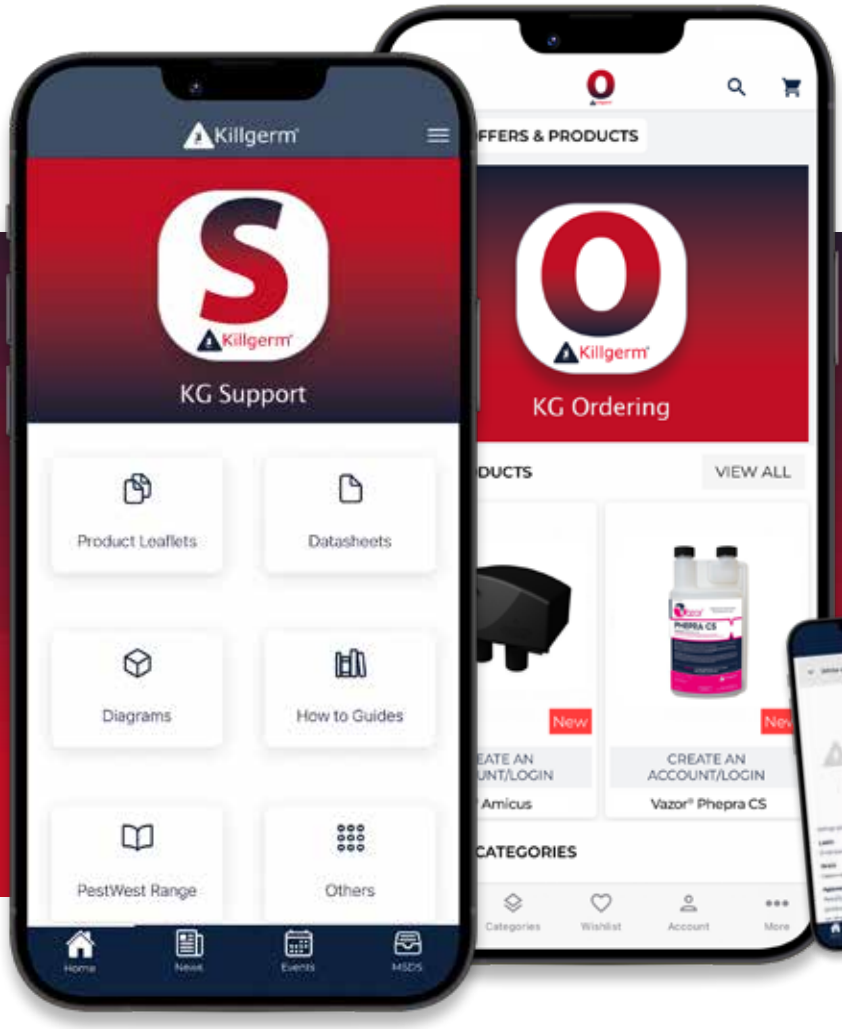


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# Risk assessment mini-series – risk assessing a roof space, site specific risk assessment

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## Considerations

There are of course many considerations and also variances between roof spaces in all types of dwellings, factories, commercial and industrial designations. So, for this particular roof space, we will use the scenario of a domestic dwelling. The following points are considerations: Access/egress into and out of the roof space. Are you using your ladders?

Pests present - depending on what you are treating, chemical protection may need to be worn and a bee suit. Fragile floors/ceilings – will you require crawl boards for example. Lighting - consider the type of pest. If wasps, avoid the use of a head torch. Low beams - additional personal protective equipment may be needed, additional lighting. Lone working - protocol may need to be in place to alert someone to help you or search for you if you do not contact them by a certain time. Chemicals being used (dependent on pest) - additional PPE could be needed, such as a chemical suit or breathing apparatus.

Confined space - if there is a specified hazard in the space then it may be a confined space and additional training and protocols might be needed to keep you safe. In general, domestic roof spaces don't tend to be classed as confined space, however you may want to review this prior to entering the space, based also on access and egress into/out of that space if it is particularly challenging or awkward.

If we can be outside the space and conduct a treatment, such as a fog or space treatment, which is remotely operated then that should be the course be the action – it is much safer. Another alternative might be using an extension lance to treat a wasp nest from outside. We would still need to check the roof space but time in the space or even significant access could be limited, again making it safer.

We also consider the likelihood and severity of the task and the individual intricacies, some of which will always be subjective and down to the person conducting the assessment. The person carrying out the work should also be considered, such as their experience and their skill level. Sometimes a table matrix is used, although you do not have to use one. There are also different and more complex matrices. This is a simple example below. The result of risk mitigation is to bring the likelihood and severity down – making the task over all safer.

If we do need to enter the roof space, let us risk assess it.

As per usual always follow your 5 steps to risk assessment for our basic risk assessment:

- Identify the hazards (anything that may cause harm)
- Decide who may be harmed and how.
- Assess the risks and act.
- Make a record of your findings.
- Review the risk assessment.

Specify the site address and the date, also who is carrying out the risk assessment and/or the work:

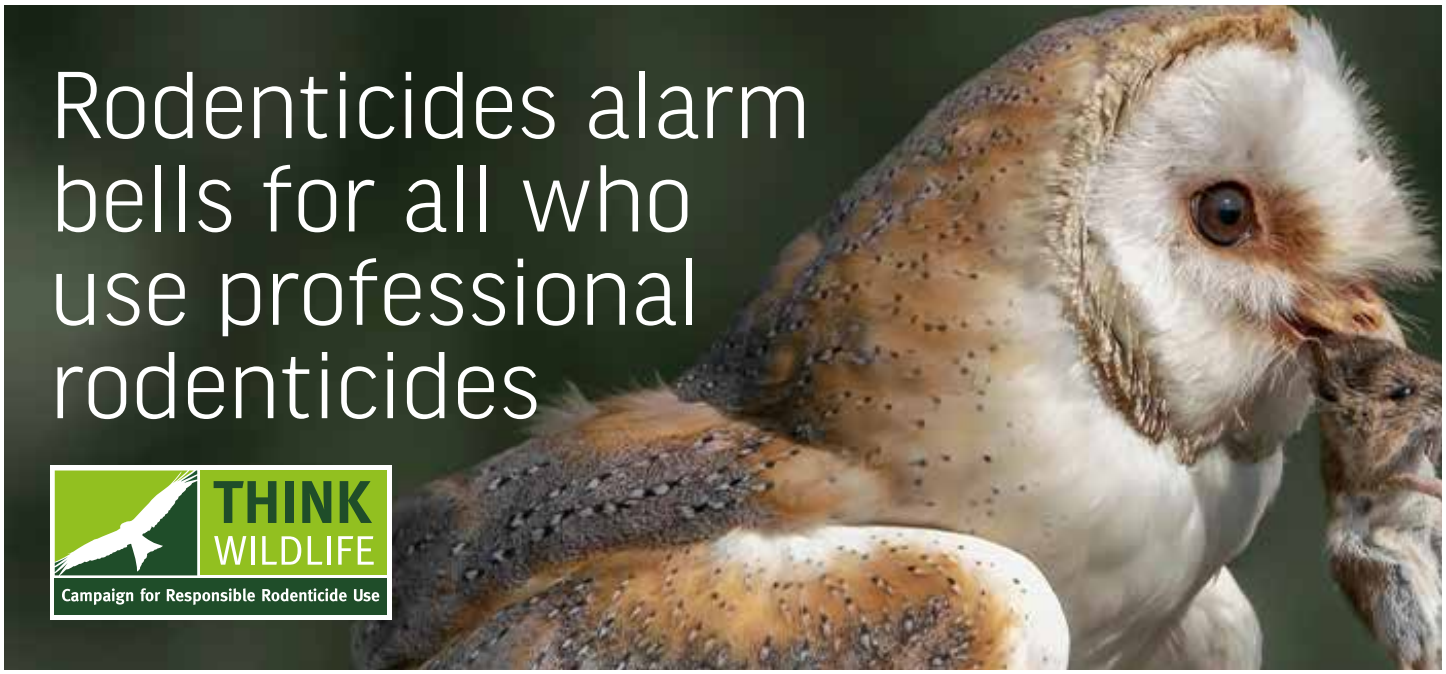
| | Likelihood | Severity |
|---|---|---|
| 1 | Highly unlikely | Trivial |
| 2 | Unlikely | Minor injury |

| | | |
|---|---|---|
| 3 | Possible | Over 7 days injury |
| 4 | Probable | Major injury |
| 5 | Certain | Incapacity or Death |

| Hazards | Who may be harmed? | Likelihood | Severity | What is the risk | Mitigation measures |
|---|---|---|---|---|---|
| Access equipment e.g. Ladders | Operator/ employee | 3 | 5 | Slip, trip, or fall from height. | Use your (company) ladders, ensure they are inspected prior to use, recommend scafftags and appropriate for the work intended. Plan your exit route, ensure its clear. |
| Fragile ceiling/floor | Operator/ Employee/ Other house occupants | 2 | 5 | Fall through floor/ceiling. | Use crawl boards, check the walking surface prior to walking on it. Knowledge of joist placement should be used to place crawl boards is the roof space is not boarded. |
| Stored items in roof space | Operator/ employee | 3 | 3 | Slip or trip, item fall/drop. | Request a clear area to work, work around items. Toe protected footwear to prevent foot injuries. |
| Electrical wiring | Operator/ employee | 3 | 4 | Electrocution, fire, spark. | Avoid or isolate. |
| Pests present – e.g. wasps | Operator/ Employee General public | 3 | 2 (5 worst case anaphylaxis) | Stings, worst case – anaphylaxis. | Specialist bee suit, hood, trousers, and gloves. If you have known anaphylaxis, carefully consider any wasp treatment! |
| Insufficient lighting | Operator/ employee | 3 | 2 | Slip, trip. Also, the incorrect placement of a light source could draw wasps toward it. | Do not wear a head torch, if artificial illumination is required place the light away from the working area and away from you but still illuminating the nest or use a red filter |
| Insufficient ventilation | Operator/ employee | 3 | 4 | Lack of fresh air, consider product labels and their directions. | Use of a respirator, leave the access hatch open both for communication to outside the space but also for ventilation. |
| Hot tempera-tures (dependent on time of year) | Operator/ employee | 3 | 5 | Heat exhaustion, heat fatigue, confusion, dehydration. | Short duration work only, regular breaks, stay hydrated. If too hot, re-schedule. |
| Low beams | Operator/ employee | 3 | 2<br>3 | Bump head, head injury. | Avoid low beam, wear a hard hat, or bump cap (illumination of the space can help). |
| Pesticides | Operator/ employee | 2 | 4 | Inhalation of the product, dermal contact absorption. Contact with water (possible open tanks) | Follow all labels, wear PPE as per COSHH assessment. (Dependent on product) – wear type 4,5,6 chemical suit, gloves, and respirator (P3+A1) filter. Good hand hygiene. Cover all open water. Check for non-targets, e.g. bats. |
| Lone working | Operator/ employee | 3 | 4<br>5 | You have an accident and require help. | Have a protocol in place. A trusted contact that at a given time - if they have not had contact from you – will raise the alarm. Use of smart tech/monitoring devices. |

Finally, a signature is essential as is the date of the signature and the time frame for review. The risk assessment is itself the written record whether is carbon copied, electronic template or document. Accompanying documents may be a method statement or safe system of work, product labels and COSHH and a visit report. Make sure it is available to whoever needs to see it or know where it is saved or stored. Keep risk assessment records for 5 years as a general rule.

# Rodenticides alarm bells for all who use professional rodenticides



THINK WILDLIFE
Campaign for Responsible Rodenticide Use

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The latest surveillance in barn owls together with recent intelligence from the government-run Wildlife Incident Investigation Scheme ring alarm bells for professional-grade rodenticide users, according to the Campaign for Responsible Rodenticide Use. Chairman Dr Alan Buckle emphasises that this alert is being issued to pest control technicians in parallel with farmers and gamekeepers on a "no blame" basis.

"Clearly, everyone using rodenticides in rural locations shares responsibility to prevent access by non-target wildlife, for which barn owls are the government-designated benchmark," he says.

Of particular concern in the CRRU surveillance is that two-thirds of the latest sample of barn owls had residues from products containing brodifacoum (CRRU report), an active ingredient in many brands, though in none was it confirmed as the cause of death.

"Yet no such products are licensed for use in 'open areas' where the main food sources for barn owls, field mice and voles, are often found," says Dr Buckle. "So it's highly likely that brodifacoum-contaminated field mice and voles eaten by owls have acquired residues from rodenticide products placed illegally in open areas.

"Equally concerning is a sudden and marked increase in the numbers of wildlife incidents involving brodifacoum. At least some of these involve either negligent misuse or intentional abuse to harm wildlife."

On all rodenticide product labels, manufacturers have to include specific instructions required by the government regulator, the Health and Safety Executive (HSE). Failing to follow these, whether deliberate or unintended, is illegal and risks prosecution.

CRRU is reminding gamekeepers and farmers as well as pest control technicians of the legally binding 'Directions For Use' printed on every rodenticide product label. They cover allowed outdoor uses, either around buildings, in open countryside or in rodent burrows. In all cases, product label instructions about protecting bait placements from non-target species must be followed.

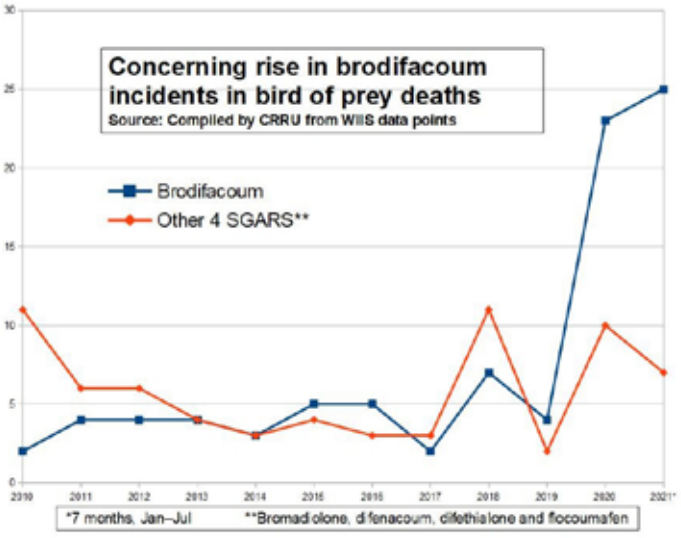
1) 'Outdoors – around buildings': allows bait to be deployed outside a building ONLY to treat or prevent an infestation inside it. The label may state elsewhere that use 'Indoors' is also allowed.

2) 'In and around buildings': allows bait use outdoors to control an infestation of a building as well as inside.

3) 'Open areas': covers treating an infestation of rats (but never mice) that is NOT DEMONSTRABLY associated with a building. Products containing brodifacoum, difethialone and flocoumafen MUST NEVER be used in 'open areas' away from buildings. Moreover, not all of those containing difenacoum and bromadiolone are authorised for use in 'open areas'.

4) 'Burrow baiting': permitted on some product labels and means that baits can be applied directly into rodent burrows, generally outdoors. This is allowed away from buildings ONLY IF the product label says that BOTH burrow baiting AND open area uses are allowed.

CRRU's core message to pest control technicians, farmers and gamekeepers alike remains: Always read labels carefully before using rodenticide products and employ all relevant instructions.



# Count to know the amount

By Dr. Stuart Mitchell

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Ever get the questions "How many mice?" or "How many rats?" Any pest management professional (PMP) conducting rodent control services has received these questions – and some days, more than once. What are the answers? The basic answer is that it is not realistic to be able to determine exact mouse and rat populations. Rather, it's about the "count to know the amount." There are several methods to plausibly determine estimated mouse and rat populations. Let's take a look at a few examples.

### Count the pups

Fecundity, or the ability to produce an abundance of offspring, is a function of reproductive biology. Mice and rats possess amazing reproductive biology. Mice can birth up to 10 pups per litter. Rats can birth up to 12 pups per litter. For example, if there are at least 10 female mice, there is a probability of up to 120 pups being birthed. If there are at least 12 female rats, there is a probability of up to 144 pups being birthed.

### Use the index

The Rodent Index Formula, from Dr. H. Michael Opitz, University of Maine, can be used to estimate a mouse population[1].

Rodent Index Formula: Number of mice caught in all traps ÷ Number of traps ÷ Number of days traps are set x 12 x 7 = Number of mice for Index

**Example:** 25 mice caught ÷ 15 traps ÷ 2 days x 12 x 7 = 69.9 (Rodent Index 3 or high population)

| Number of mice for Index | Rodent Index | Description of Index |
|---|---|---|
| 0-10 | 1 | Low |
| 11-25 | 2 | Moderate |
| 26+ | 3 | High |

### Count burrow entrances

Rat observation guidelines, from the Pest Control Video Network, can be used to estimate a rat population.[2]

### Rat observation:

- 1 rat/night + 0 rats/day + evidences (scats and gnawing) = medium population
- 3 rats/night + 1 rat/day + evidences (scats and gnawing) = large population
- Rat burrow is 1.2 to 1.5 m (4 to 5 feet underground) with protective cover
- Average 3 entrances/burrow
- Average 8 rats/burrow
- Example:
- Observe 15 burrow entrances
- 15 entrances ÷ 3 entrances/burrow = 5 burrows
- 5 burrows x 8 rats/burrow = 40 rats

### Verifiable rodent data

Use verifiable rodent count data that is reliably provided by a remote sensing system. Such a system provides pest management professionals with accurate catch counts by trap and location. Immediately get a new rodent count IQ from a distance via intelligent rodent devices. In real time, know which devices have activity as well as which areas are hot spots.

Whether it's counting pups, rodent index, burrow entrances, or rodent data, understanding what to count will better understand the amount. After all, it's about the count to know the amount!

References:

1. Steinhart, Terry L. and Karsten, Arlin W., "Trapping to Estimate Rodent Populations: A Demonstration Project" (2002). Swine Research Report, 2001. 21.
2. Pest Control Video Network (pcvnonline.com), "The Pests of Your Life," Edition M6: "Rodents and IPM."

# Death Trap or Better Trap?

## By Dr. Stuart Mitchell

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Both anecdotally and empirically, rodentology suggests that death traps or "seasoned" snap traps or traps with previous rodent capture residues may be many-fold more effective at attracting mice and rats to snap traps as well as increased trap engagements and trap captures. Soiled or seasoned traps may possess residues of physical tissues, scats, sebum, and physiological or bio-chemical expressions from urine such as acetamide-"mousy smell" (crystalline amide of acetic acid), pheromones, and hormones.

Depending upon conditions, and the time of death in a trap, a mouse or rat may undergo four stages of decomposition, which include fresh, bloated, active decay, and advanced decay. The fresh stage (autolysis) begins immediately as gut bacteria digest cells and tissues. The bloating stage results from bacterial metabolic gasses inflating the carcass, which pushes fluids from bodily openings and produces strong odors. The active decay stage results in tissue liquefication with strong odors. The advanced decay stage results in dry carrion. All or some stages occurring in a snap trap, which becomes a death trap, and a better trap.

In the world of mice and rats, "smell-sense" is a significant behavioral drive. To domesticate or take advantage of rodent smell-sense, it may be "good-sense" to use some food scents. "Lureology" suggests adding an odiferous, enticing food-scent to seasoned snap traps. A hypoallergenic food-based gel or bait, which meets the specific nutrient-rich requirements of mice and rats, can be added to "synergize" seasoned traps.

A better trap can be a smart trap. With built-in sensor technology, pest management professionals (PMPs) can now place snap traps within remote areas and determine mice and rat captures without physically checking. A smart trap can possess a long-life battery, robust ingress protection (IP), state of the art sensors, and communicate via LoRa, Wi-Fi, or Bluetooth® technologies. Better traps as smart traps can provide time-stamps of rodent activity as well as on-site communication with PMPs. Knowing which traps to service saves valuable time and limits environmental disturbance.

Death traps that are better traps, which can be smart traps, should be placed three-dimensionally within generally poor environmental hygiene areas, shadowed areas, adjacent to dark corners, and along shadowed structural guidelines or runways. More specifically, and in sufficient numbers and appropriate positions, place snap traps within areas evidencing rodent activity, such as blood, urine or urine pillars, scats, hair, sebum smears, gnaw marks, and shredded or nesting materials.

Prior to an initial trapping event or events, do not alter the environment with exclusion or sanitation practices. Above ceilings, snap traps intuitively placed along utilities will require securing or wiring-in-place. After initial trapping events, service traps at 7 to 10 day intervals.

To avoid contact with dead rodents, use forceps and/or practice universal precautions (wear nonporous, non-latex gloves, goggles, and if necessary, a face shield). Dead mice and rats may possess diseases and ectoparasites.

For a mouse or rat, a snap trap is a death trap. For the pest management professional, a death trap may be a nuance for a better trap.

# New Products

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## Sakarat Red florescent Tracking Gel


Red Sakarat Fluorescent Tracking Gel is a professional use, non-toxic tracking get for rats and mice. Can be used on horizontal or vertical surfaces, and allows tracks, routes, hideouts and harbourages to be easily identified. Can be used indoors or outdoors.

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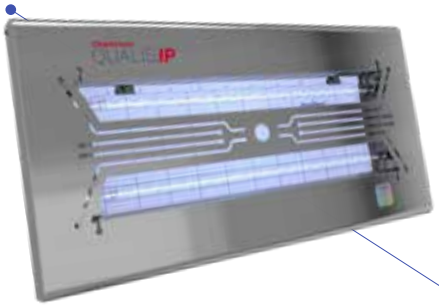


## Chameleon Qualis IP

The unique Chameleon® Qualis ip fly control system incorporates the latest UV LED tube technology Quantum X, to deliver a whole new level of fly control. It is entirely made in stainless steel and IP66 certified, therefore offering advanced fly control for demanding environments and is suitable for areas that are steam-cleaned, hosed down and are damp or corrosive e.g. dairies, abattoirs and industrial kitchens.

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## On Top Pro 2

Lowest power consumption, consistent with superior flying insect attraction. Patented installation concept within a suspended-ceiling to achieve discreet and efficient fly control: NOW with all the added advantages of the Quantum X LED technology!
Ease of servicing – LED tubes require replacement only once every 3 years

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## Ultra Bee Suit

The Ultra Bee Suit is intended to provide protection from bee, wasp and hornet stings.. Made from a high-tech 3D fabric it provides the best sting protection. Tested by professionals with very angry bees, wasps, Asian and European hornets! To ensure full protection the suit must be worn with protective boots, gloves and/or gauntlets for extra ankle/wrist protection.

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## Roundup ProVantage herbicide


Roundup® Pro Vantage 480 is the latest glyphosate product from the innovative Monsato brand. The Pro Vantage 480 sets new and improved standards for the market by offering a new high load and low drift formulation which increases the area covered per bottle ultimately reducing waste and transportation. Roundup® Pro Vantage 480 also holds the highest level of technical specification which means many of the vital stewardship aspects (such as aquatic approval and a non-hazardous label) are addressed. An excellent choice for control of broad-leaved weeds on hard surfaces, an added benefit of which is to help reduce vegetation harbourage in rat control. A PA1 PA6 certificate is required for purchase and application.

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# Chris joins the BASIS Membership Committee

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The pest control industry's representative on the BASIS Membership Committee Chris Davis has been involved in Pest Control for 35 years and believes that technology, education, and willingness to be open minded is very important in today's market.

He currently Chairs the Sector Advisory Panel in Pest Management for Royal Society for Public Health (RSPH) and the Pest Control Sector Education and Training Forum. In 2017, Chris received the Charles Keeble Award at the British Pest Management Awards in recognition for his contribution to the industry.

"Over the years I have been fortunate to support many new recruits and help them develop into competent professional pest controllers, and the aim of this talk was to provide guidance on how to structure a comprehensive training programme and get the best out of your new recruit" says Chris.

The Membership Committee's task is to steer the organisation's future membership strategy and improve its service to its current members, and top of the agenda for Chris is continuing to spread the message about why being a member of a CPD (Continuing Professional Development) scheme like BASIS PROMPT is so important along with training.

The committee is in place to provide members with an opportunity to influence the organisation's future membership strategy. We encourage members to get in touch with their representative with suggestions of ways BASIS PROMPT can improve its service, while benefitting associated industries.

"The committee will be responsible for ensuring CPD standards are maintained, as well as gathering feedback on all aspects of the organisation from members," adds Stephen Jacob.


30TH ANNIVERSARY

# A date For Your Diaries Join us for PestTech '23

## We are celebrating this year! 30 years of running the PestTech Exhibition.

The first event was run at East Midlands conference centre, Nottingham University. Visitors to the show came from all over the UK and were treated to a large number of stands. After the huge success of this event a move to larger premises was needed and 1994 saw a move to Donnington Park. The event was then paired with PCN Dinner which has always been a highlight of PestTech!

PestTech has seen a year on year growth and we have had to move its location to larger venues culminlating to where we are this year at the Stadium MK at Milton keynes.

Thanks go out to all our supporters, exhibitors, Delegates, and the volunteers who over the years have made! PestTech the success story it is like today.

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NPTA national pest technicians association


# Problems of the Heart.

0113 245 0845 giles.ward@milnerslaw.com or uk.linkedin.com/pub/giles-ward/31/187/6b3 @MilnersGiles

Relationships are the basis of society, but they require work to maintain, simply with the ordinary pressures of everyday life. Trying to keep a happy home life balanced with your social life and work responsibilities can often lead to feelings of burnout.

The evidence coming through is showing that the COVID-19 pandemic lead to an increased strain on married couples, with a 9.6% increase in divorces from 2020 to 2021. More relevant currently is the cost-of-living crisis that is playing a part in increasing divorce rates. A survey published in January 2023 by Relate, found that 19% of participants had considered getting a divorce in 2023, and as we stand in 2023 an estimated 42% of married couples divorced. The average marriage life was just 11.9 years.

When couples decide that there is no option but to separate, the product of divorce is felt heavily on both sides. Often those involved in the divorce will experience negative emotions ranging from confusion, shame, anxiety all the way to depression, anger and the feeling of wanting revenge on the other partner. These emotions do not only affect the couple, but also spread to family members and friends. Where children are involved, these emotions are heightened. Children can struggle with the idea that they must come and go between two different homes; they can believe that they had some doing in their parents decision to divorce; sadly children can get caught significantly in the parent›s separation.

Despite increasing equality between husbands and wives, it is still the case that wives will suffer a greater financial hardship upon divorce. This is often down to the fact that women still earn less than men, usually due to the fact that it remains the case that it is the women who often work part-time after the birth of a child, which continues throughout the parties marriage. However, men are also compounded by the financial effects of divorce, from having to purchase a new home, losing their ex-wife's income and where children are involved and they do not have a shared care arrangement , making monthly child-support payments and /or spousal maintenance.

In addition to the emotional and financial effects of divorce, the legal costs related to a divorce can also be extremely expensive. It is estimated that the average couple will spend £14,561 for legal costs relating to divorce in the UK, money that neither party will often have readily available.

It appears that current trends are showing that marriage is no longer 'for life' and individuals should be advised to go into a marriage and divorce with their eyes wide open, knowing exactly what to expect. In the modern landscape of relationships, pre-nuptial and post-nuptial agreements are pivotal, and while it may not be the most romantic discussion between future spouses, these agreements can provide a financial comfort blanket to newlyweds and allow for a unproblematic divorce should the worst happen.

If you are currently facing issues relating to divorce or child arrangements, or require more information, our talented solicitors at Milners can provide you with expert assistance. Please contact our head of family Sarah Hubery on 07922 421236 or at sarah.hubery@milnerslaw.com or for commercial matters our Senior Partner, Giles Ward on 0113 245 0852 or at Giles.Ward@milnerslaw.com

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## NORTHERN COURSES 2023

| Date | Venue | Cost plus VAT |
|---|---|---|
| **BASIC PRINCIPLES OF PEST CONTROL** | | |
| **Open Awards Level 2 Award in the Principles of Rodent Control** | | |
| 6th June 2023 | Ossett | *£155/£185 |
| 18th July 2023 | Ossett | *£155/£185 |
| 22nd August 2023 | Ossett | *£155/£185 |
| 5th Sept 2023 | Ossett | *£155/£185 |
| **Killgerm Principles of Insect Control** | | |
| 6th & 7th Sept 2023 | Ossett | * £180/£210 |
| **REFRESHER COURSES** | | |
| **Pest Control Refresher/Update** | | |
| 5th Oct 2023 | Ossett | * £55/£155 |
| **SPECIALIST COURSES** | | |
| **Bird Free** | | |
| 7th June 2023 | Ossett | £120 Inc lunch |
| **Safe use of Air Weapons for Bird Control** | | |
| 18th July 2023 | Holmes Chapel | £190 Inc lunch |
| 17th Oct 2023 | Doncaster | £190 Inc lunch |
| **Drainage Investigations & Rat Control** | | |
| 22nd June 2023 | Ossett | £190 Inc lunch |
| 12th Oct 2023 | Ossett | £190 Inc lunch |

## SOUTHERN COURSES 2023

| Date | Venue | Cost plus VAT |
|---|---|---|
| **EAST ANGLIA** | | |
| **BASIC PRINCIPLES OF PEST CONTROL** | | |
| **Open Awards Level 2 Award in the Principles of Rodent Control** | | |
| 12th Sept 2023 | Norwich | *£155/£185 |
| **Killgerm Principles of Insect Control** | | |
| 13th & 14th Sept 2023 | Norwich | * £180/£210 |
| **INSECT WORKSHOPS** | | |
| **Insect Workshop 2 - Ants, Bees & Wasps** | | |
| 7th June 2023 | Norwich | £155 Inc lunch |
| **Date** | **Venue** | **Cost plus VAT** |
| **Bird Free** | | |
| 21st Sept 2023 | Reigate | £120 Inc lunch |
| **Open Awards Level 2 Award in the Principles of Rodent Control** | | |
| 18th July 2023 | Lingfield | *£155/£185 |
| 19th Sept 2023 | Lingfield | *£155/£185 |
| **Killgerm Principles of Insect Control** | | |
| 19th & 20th July 2023 | Lingfield | * £180/£210 |
| 20th & 21st Sept 2023 | Lingfield | * £180/£210 |

| Date | Venue | Cost plus VAT |
|---|---|---|
| **SPECIALIST COURSES** | | |
| **Safe use of Air Weapons for Bird Control** | | |
| 27th July 2023 | Reading | £190 Inc lunch |
| 19th Sept 2023 | Reading | £190 Inc lunch |
| **Bird Control** | | |
| 25th & 26th July 2023 | Reading | £270 Inc lunch |
| **Bird Free** | | |
| 21st Sept 2023 | Reigate | £120 Inc lunch |
| **Drainage Investigations & Rat Control** | | |
| 8th June 2023 | Reigate | £190 Inc lunch |
| **Date** | **Venue** | **Cost plus VAT** |
| **BERKSHIRE & HAMPSHIRE** | | |
| **BASIC PRINCIPLES OF PEST CONTROL** | | |
| **Open Awards Level 2 Award in the Principles of Rodent Control** | | |
| 14th June 2023 | Newbury | *£155/£185 |
| **REFRESHER COURSES** | | |
| **Pest Control Refresher/Update** | | |
| 22nd June 2023 | Newbury | * £55/£155 |
| 27th Sept 2023 | Newbury | * £55/£155 |
| **SPECIALIST COURSES** | | |
| **Insect Identification** | | |
| 28th Sept 2023 | Newbury | £190 Inc lunch |
| **Drainage Investigations & Rat Control** | | |
| 21st Sept 2023 | Newbury | £190 Inc lunch |
| **PRACTICAL COURSES** | | |
| **Trapping Techniques** | | |
| 6th Sept 2023 | Hampshire | £155 Inc lunch |
| **Date** | **Venue** | **Cost plus VAT** |
| **BRISTOL** | | |
| **BASIC PRINCIPLES OF PEST CONTROL** | | |
| **Open Awards Level 2 Award in the Principles of Rodent Control** | | |
| 28th Nov 2023 | Bristol | *£155/£185 |
| **Killgerm Principles of Insect Control** | | |
| 29th & 30th Nov 2023 | Bristol | * £180/£210 |
| **REFRESHER COURSES** | | |
| **Pest Control Refresher/Update** | | |
| 24th Oct 2023 | Bristol | * £55/£155 |
| **SPECIALIST COURSES** | | |
| **Safe use of Air Weapons for Bird Control** | | |
| 26th Sept 2023 | Portishead, Bristol | £190 Inc lunch |

| Date | Venue | Cost plus VAT |
|---|---|---|
| **Bird Control** | | |
| 27th & 28th Sept 2023 | Portishead, Bristol | £270 Inc lunch |
| **Date** | **Venue** | **Cost plus VAT** |
| **MIDLANDS** | | |
| **REFRESHER COURSES** | | |
| **Pest Control Refresher/Update** | | |
| 20th Sept 2023 | Burton on Trent | * £55/£155 |
| **SPECIALIST COURSES** | | |
| **Safe use of Air Weapons for Bird Control** | | |
| 11th July 2023 | Kibworth | £190 Inc lunch |
| 6th Sept 2023 | Kibworth | £190 Inc lunch |
| **Bird Control** | | |
| 12th & 13th July 2023 | Kibworth | £270 Inc lunch |
| **Drainage Investigations & Rat Control** | | |
| 10th Aug 2023 | Burton on Trent | £155 Inc lunch |
| **INSECT WORKSHOPS** | | |
| **Insect Workshop 1 - Bedbugs & Fleas** | | |
| 28th Sept 2023 | Burton on Trent | £155 Inc lunch |

## SCOTTISH COURSES 2023

| Date | Venue | Cost plus VAT |
|---|---|---|
| **REFRESHER COURSES** | | |
| **Pest Control Refresher/Update** | | |
| 7th Sept 2023 | Huntingtower Hotel, Perth | * £55/£155 |
| **SPECIALIST COURSES** | | |
| **Safe use of Air Weapons for Bird Control** | | |
| 3rd Oct 2023 | Cluny by Kirkcaldy | £190 Inc lunch |
| **Bird Control** | | |
| 4th & 5th Oct 2023 | Cluny by Kirkcaldy | £270 Inc lunch |
| **Insect Identification** | | |
| 12th July 2023 | Livingston | £190 Inc lunch |
| **Drainage Investigations & Rat Control** | | |
| 20th July 2023 | Livingston | £190 Inc lunch |

**Course Charges**
* Reduced rate applies to existing Killgerm customers who have reached a set minimum annual spend limit.

**ROYAL SOCIETY FOR PUBLIC HEALTH AND BRITISH PEST CONTROL ASSOCIATION - LEVEL 2 AWARD IN PEST MANAGEMENT**
**FEE - £900 + VAT per person (includes Killgerm manual, RSPH Exam, lunch & refreshments)**

| Venue: Ossett | |
|---|---|
| Units 1 to 3 | Tuesday 13th to Tuesday 20th June 2023 |
| Examination | Wednesday 21st June 2023 |
| **Venue: Ossett** | |
| Unit 3 | Monday 9th & Tuesday 10th October 2023 |
| Unit 1 | Monday 16th & Tuesday 17th October 2023 |
| Unit 2 | Monday 23rd & Tuesday 24th October 2023 |
| Examination | Wednesday 25th October 2023 |

**ROYAL SOCIETY FOR PUBLIC HEALTH AND BRITISH PEST CONTROL ASSOCIATION - LEVEL 2 AWARD IN PEST MANAGEMENT**
**FEE - £900 + VAT per person (includes Killgerm manual, RSPH Exam, lunch & refreshments)**

| Reigate | |
|---|---|
| Unit 3 | Monday 30th & Tuesday 31st October 2023 |
| Unit 1 | Monday 6th & Tuesday 7th November 2023 |
| Unit 2 | Monday 13th & Tuesday 14th November 2023 |
| Examination | Wednesday 15th November 2023 |

**ROYAL SOCIETY FOR PUBLIC HEALTH AND BRITISH PEST CONTROL ASSOCIATION - LEVEL 2 AWARD IN PEST MANAGEMENT**
**FEE - £900 + VAT per person (includes Killgerm manual, RSPH Exam, lunch & refreshments)**

| Livingston | |
|---|---|
| Unit 3 | Tuesday 12th & Wednesday 13th September 2023 |
| Unit 1 | Tuesday 19th & Wednesday 20th September 2023 |
| Unit 2 | Tuesday 26th & Wednesday 27th September 2023 |
| Examination | Thursday 28th September 2023 |

**ROYAL SOCIETY FOR PUBLIC HEALTH LEVEL 3 AWARD IN PEST MANAGEMENT. FEE - £800 + VAT per person (includes RSPH Exam, lunch & refreshments)**

| Venue: TBC |
|---|
| Training and Information day |
| Core Unit examination |

Note this lists only a selection of course dates. Please visit our website for the full range of training courses:
**www.killgerm.training**

Some courses remain available online: **https://training.killgerm.com**

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